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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/098,730 06/18/98 SUGIYAMA

T PM-254782

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IM22/0417

EXAMINER

TUNG, T

ART UNIT

PAPER NUMBER

1743

DATE MAILED:

04/17/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/098,730

Applicant(s)

SUGIYAMA ETAL

Examiner

T. TUNG

Group Art Unit

1743

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—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

## Status

- ☒ Responsive to communication(s) filed on 3-22-00
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1, 2, 4, 6 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1, 2, 4, 6 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.
- ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_
- ☒ Notice of References Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

Office Action Summary

Art Unit: 1102

The proposed amendment of March 22, 2000 has been entered and the final rejection of Nov. 22, 1999 is hereby withdrawn.

Claims 1, 2, 4, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mase et al '456 in view of Suzuki et al.

Mase '456 discloses an alumina layer 54 directly sandwiched by a gastight insulating layer 50, an alumina layer 34 directly sandwiched by electrolyte layers 28 and 8, and an alumina layer 20 directly sandwiched by electrolyte layers 8 and 10. The alumina layers are porous for the purpose of minimizing stress due to difference in coefficients of thermal expansion. Thus, the alumina layers correspond to applicant's boundary layers. See col. 6, line 50 to col. 8, line 38.

Applicant's claims differ by calling for the boundary layers to have a sintered particle size larger than those of the electrolyte and insulating layers.

As discussed before, Suzuki discloses forming a more porous layer by starting with larger particles than a neighboring layer. See col. 2, lines 38-49. It would have been obvious for Mase to start with larger particles in the boundary layers in order to obtain a more porous layer in view of Suzuki, since the adoption of known features from analogous prior art in the absence of unexpected result is within the skill of the art. Also, this technique would make it unnecessary to resort to subsequent treatment for providing higher porosity.

Claims 1, 2, 4, 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.


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The expression "directly interposed" at lines 9 and 11 of claim 1 is vague. Does applicant mean that the boundary layer directly contacts the adjacent layers, or that there is no other intermediate layer between the boundary layer and an adjacent electrolyte or insulating layer, or what?

The examiner can be reached at 703-308-3329. His supervisor Jill Warden can be reached at 703-308-4037. Any general inquiry should be directed to the receptionist at 703-308-0661. A fax number for TC 1700 is 703-305-7719.

  
Ta Tung

Primary Examiner

Art Unit 1743